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FOREST RESEARCH NEWS

FOR THE MIDSOUTH

September 1972

SOUTHERN FOREST EXPERIMENT STATION, FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE



Japanese honeysuckle planted in cleared areas in an Arkansas forest was browsed heavily by deer when other foods were scarce.

Emergency Rations for Southern Deer

Contrary to popular opinion, deer numbers in southern upland forests are limited mainly by the winter food supply rather than by hunters. After most leaves fall in autumn, deer are highly dependent upon evergreen leaves and on fruits and seeds, particularly acorns. Research by the Southern Forest Experiment Station and the Arkansas Game and Fish Commission shows that many animals die when the acorn crop is poor. One promising solution is to grow emergency rations on small plots scattered through the forest. And the Station's wildlife researchers think they have found an ideal plant for these plots in Japanese honeysuckle.

Several years ago honeysuckle was planted along with Elbon rye and Korean lespedeza on cleared plots in the Ozark Mountains of northern Arkansas. Fertilizer was applied to the soil around honeysuckle plants, and their growth was observed. Some plants were protected by cages and some were exposed to deer.

Results with honeysuckle were highly encouraging. Most of the plants thrive on the dry mountain slopes. Leaves, which are

Continued on P. 7, Col. 1

TENNESSEE TIMBER VOLUME UP, FOREST ACREAGE DOWN

Tennessee's timber volume increased during the past decade, even though forest acreage is down 5 percent. Tree growth exceeded harvest for both hardwoods and softwoods in 1970.

These are among the findings of the latest forest survey of the State, the first since 1961. The Southern Forest Experiment Station of USDA's Forest Service has released a report, "Forest Resources of Tennessee" by Paul A. Murphy, analyzing this important renewable resource. Details are available in two other new Southern Station publications. They are "Forest Statistics for Tennessee Counties" by Arnold Hedlund and J. M. Earles and "Tennessee Forest Industries" by Daniel F. Bertelson.

Forests occupy 13.1 million acres or about 50 percent of the land in Tennessee. About 12.8 million acres are classified as commercial forest, in which trees may be cut for timber. Some 300,000 acres are reserved from cutting. Although commercial acreage is down 5 percent since 1961, there is still more forest than there was 20 years ago.

Some 75 percent of the diverted forest acreage went to pasture, mostly in the Central and Plateau regions. The remaining 25 percent was planted in row crops—soybeans, corn, and cot-

ton—in the western part of the State. Other uses, chiefly urban and highway expansion, claimed an additional 309,000 acres. Abandonment of farmlands added some acreage to the forest, and the net change was a loss of 613,000 acres.

The loss in acreage was more than compensated by improved stocking on the remaining forest. During the decade, timber volume increased 26 percent for softwoods and 11 percent for hardwoods. Trees less than 18 inches in diameter accounted for most of the gain.

White oaks, red oaks, hickories, and yellow-poplar make up most of the growing stock volume. However, rough and rotten trees occupy some areas, and there will be little natural improvement until such trees are removed to make room for better ones. Murphy estimates that only one-fifth of the commercial forest land is well stocked.

The volume of timber cut from Tennessee forests in 1970 was less than in 1960, partly because veneer and cooperage plants decreased both in number and output. Small sawmills, which cut mostly softwoods, have also declined in number.

Because the State's pulpmill capacity has expanded, pulpwood production reached a record level of 437,000 cords in 1970—a 24 percent increase over 1960. However, Tennessee mills import more than half of their wood from other States. Use of wood residues for pulp has been increasing steadily for the past 10 years.

Copies of the reports are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.



Mixed cove hardwoods on the Cumberland Plateau in central Tennessee.

Forestry Still A Good Investment

Timber management in the South has attracted large investments for many years, but pressures to protect and improve the environment have made investors wary. Will environmental constraints that may be imposed on timber management eliminate profits? Walter C. Anderson, an economist at the Southern Forest Experiment Station, does not think so.

His analysis indicates that environmental regulations will raise only slightly the cost of improving existing timber stands. Costs of converting poor hardwood stands to pine, another major forestry investment in the South, will be affected more. But Anderson believes that investors will be able to absorb some additional cost, since improvements in harvesting and manufacturing technology are likely to increase the value of standing trees.

Southern forestry practices of concern to environmentalists in-

clude prescribed burning, application of herbicides, fertilization, clearcutting, and elimination of hardwoods from pine stands. In most instances, Anderson believes, reasonable regulations to govern these practices will cause only moderate increases in the cost of growing timber.

He says land managers in the region have long recognized that forests produce valuable non-wood products jointly with timber. Under the multiple-use concept, much of the forest that is supplying wood for southern industries is also managed to maintain supplies of pure water, furnish wildlife habitat, and provide outdoor recreation.

Harvesting and processing techniques, according to Anderson, can be improved to increase the value of standing trees. He sees advantages in tree-length logging, in which boles are limbed and delivered to mills full length. At mills, each bole sec-

tion can then be converted into the product for which it is best suited. Improvements in milling also offer opportunities to increase the value of trees.

Wood is a renewable resource, and its extraction and conversion damage the environment less than production of most of its substitutes. Demands for southern softwoods are expected to increase by 70 percent by the year 2000. Since the area on which wood can be grown is shrinking, both land and timber value are increasing.

Anderson's analysis is contained in an article, "Southern Forestry Investments in an Era of Environmental Concern." Reprints are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

TREE BREEDING TERMS DEFINED

A revised "Glossary for Forest Tree Improvement Workers" by E. B. Snyder has been published by the Southern Forest Experiment Station of USDA's Forest Service.

The new version updates the original glossary, which was published in 1959.

As before, the definitions have been written primarily for foresters and others interested in tree improvement. The terms are chiefly those in use by tree breeders but not necessarily familiar to persons with little or no botanical background.

Copies are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

Wanted: Longleaf Pine Plantations



Although longleaf is the queen of southern pines, very little information has been published about the growth and yield of longleaf plantations.

Researchers at the Southern Forest Experiment Station would like to remedy that situation, but successful longleaf plantations are scarce. So they are asking readers to help them locate stands suitable for measurement.

To qualify, the plantation must contain at least one plot—preferably of 1 acre in area, but at least not less than 0.1 acre—that can answer the following description:

- Well-stocked in pure longleaf pine, with originally planted trees spaced according to the original pattern. (Infiltration of other species or natural longleaf unacceptable.)
- Uncut since planting, or with a complete record of all trees cut.
- Stocked mostly with trees over 4½ feet high.

Plantations of all ages are acceptable, but older ones are especially desired. A wide range of sites is wanted, and the plantations may be either on abandoned fields or on cutover forest land. They may be in either public or private ownership, provided that researchers will be allowed to measure the plots. No permanent installation will be made.

If you know of such a plantation anywhere in the longleaf belt, from Texas to North Carolina, please report its location and the name of the person to be contacted to: Thomas C. Croker, Southern Forest Experiment Station, P. O. Box 769, Brewton, Alabama 36426.



JOHN BARBER NAMED SOUTHERN STATION HEAD

Dr. John C. Barber became Director of the Southern Forest Experiment Station on May 28. He replaced Dr. Robert L. Youngs, who was named Associate Deputy Chief for Research in Washington, D. C.

A native of North Carolina, Dr. Barber received his B. S. and M. S. degrees in forestry from North Carolina State University. He earned his Ph.D degree at the University of Minnesota. He joined the Forest Service in silvicultural research at Asheville, North Carolina, in 1951, later transferring to Macon, Georgia, which he worked in loblolly pine silviculture and tree improvement. While at Macon he became project leader for seed, nursery, and tree improvement research.

In 1964 Dr. Barber was named project leader for the Southern Station's Institute of Forest Genetics at Gulfport, Mississippi. While there he received an award from the Gulf States Sec-

tion of the Society of American Foresters for "Distinguished Service to the Forestry Profession in Mississippi."

He moved to Washington, D. C., in 1967 as Branch Chief for Forest Genetics Research and for Research on Timber Related Crops. In 1969 he organized the Second World Consultation on Forest Tree Breeding, which was held in Washington, D. C. He was active in developing certification standards for forest tree seed, and is the author of numerous publications in forest genetics and tree breeding research. In 1971 he was assigned as Assistant to the Deputy Chief for Forest Service Research.

Dr. Barber's professional activities include participation in the International Poplar Commission, the North American Forestry Commission, and the International Union of Forestry Research Organizations. He is a member of the Society of American Foresters, the American Forestry Association, the Forest Farmers Association, the American Association for the Advancement of Science, and Sigma Xi.

Dr. Barber served in the European Theater in the U. S. Army from 1943 through 1946. He is married to the former Francene King of South Norfolk, Virginia. They have two sons.

Dr. Youngs had served as Southern Station Director for the past two and a half years.

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SAND PINE SYMPOSIUM

An often maligned but potentially valuable tree species of southern United States will be the subject of intensive discussion at a Sand Pine Symposium in Panama City, Florida, December 5, 6, and 7. The Southeastern Forest Experiment Station, the Florida Division of Forestry, and the University of Florida Cooperative Extension Service will sponsor the meeting.

Twenty formal papers will summarize what is known about sand pine seeds and seedlings and how they can be planted, how the trees grow, how they can be managed in plantations and natural stands, how they can be protected from damaging agents, and how both strains of the species—the Ocala and Choctawatchee—can be improved. The meeting will include a field tour to look at sand pine on selected sites in the Chipola Experimental Forest near Marianna, Florida.

NEW SYSTEM OF TIMBER CRUISING

A revolutionary method of estimating the volume and quality of standing timber is the STX system. Since its invention and introduction in 1963 by L. R. Grosenbaugh, it has been tested widely and applied for sales in a number of timber types throughout the U. S. In situations where timber must be separated into grade or quality classes it has proved more accurate, efficient, and flexible than earlier techniques. It employs sampling and measuring tech-

Continued on P. 7, Col. 3

Termite Damage Can Be Prevented, Controlled

Subterranean or ground-nesting termites are the most destructive insect pests of wood. They attack buildings and other wood products in all the States except Alaska. They are most numerous in areas where the climate is mild.

But preventive measures can be taken during planning and construction. And control measures where infestations develop will decrease the waste of wood and wood products and loss to the homeowner.

Tests begun in 1944 by Southern Forest Experiment Station scientists at Gulfport, Mississippi, have been the basis for chemical control and preventive measures now used worldwide. Several treatments with soil chemicals continue to offer complete protection from termites after 19 to 23 years of service.

Chemical controls mostly consist of treating the ground under a building so that termites won't penetrate. After a building has become infested, it is often difficult and costly to apply control measures.

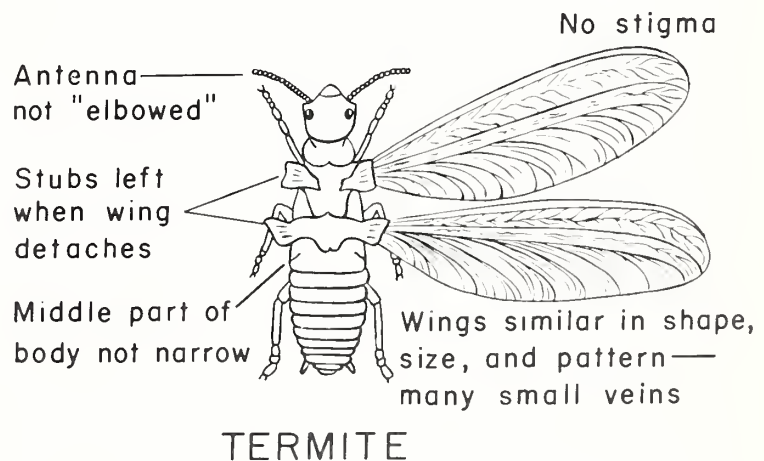
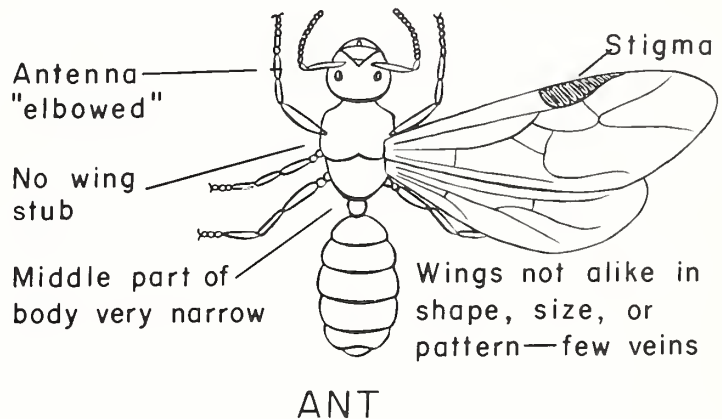
Soil samples taken from outdoor test areas in southern Mississippi show that the insecticides have moved only a few inches during the years of exposure to the elements. Since in practice the chemicals are placed on the soil under buildings where there is a minimum of weathering or erosion, the treatment presents a minimal hazard to man.

The Southern Station scientists conducting the long-term tests are authors of recently re-

vised USDA Home and Garden Bulletin 64. This publication suggests methods for forestalling attack in new construction and describes prevention features a prospective home buyer or builder might want to check with the contractor. It tells where to look for termites in existing buildings and how to control them by

structural and chemical means.

Copies of Home and Garden Bulletin 64, "Subterranean Termites, Their Prevention and Control in Buildings," by H. R. Johnston, Virgil K. Smith, and Raymond H. Beal, are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113. Also available are reprints of an article describing the 27-year-old tests, which will be continued as long as any of the applications of insecticide remain effective.



Termite workers—the forms that damage wood—are white and wingless, and incapable of reproduction. But during early spring, and also at other times, an established colony will send out sexual adults with four wings and brown or black bodies. The adults are sometimes mistaken for ants but can be told apart by comparing the features in the drawings above. A swarm of adult termites inside a building is usually a sign of infestation.



Shaded areas represent counties in which woodlands serve as security for loans from insurance companies.

LIFE INSURANCE COMPANIES REPORT TIMBER LOAN PROGRAMS

Experience has shown that extending credit on well-managed forest tracts can be sound and profitable business. And forest credit has also proven to be a valuable means of maintaining and increasing woodland productivity.

Today forest financing, in one form or another, is available in every State. Opportunities are particularly well developed in the South and the Pacific Northwest. The financial institutions that accept timber and forest land as security are of three major types: commercial banks, the Federal land banks of the Farm Credit System, and life insurance companies. Of these, life insurance companies are the only major source of truly private long-term

lending on timber and timberland.

A report on the life insurance industry's current timber loans has recently been published by the Southern Forest Experiment Station. The author, William C. Siegel, describes each program, with special attention to facilities for making loans to woodland owners.

The six companies identified as having active timber loan facilities are the Mutual Life Insurance Company of New York, Connecticut General Life Insurance Company, Equitable Life Assurance Society of the United States, Travelers Insurance Company, John Hancock Mutual Life Insurance Company, and one firm requesting that it not

be named. Each firm reported that it will lend in all States and geographical areas.

Travelers inaugurated its timber loan program in 1950. Others followed during the 1950's, and Mutual of New York began in 1964.

More than 97 percent of the current loans are in the Southern States. Nearly 70 percent of the Nation's total are in Georgia. Two-thirds of the active loans are to individuals, and more than a third of the borrowers—all in the Southern States—are farmers.

In addition to providing good investments for the life insurance companies, the timber loans are contributing to the Nation's forest economy. Many

Continued on P. 8, Col. 3

evergreen, were particularly high in protein during the winter, when deer need proteins badly.

Deer browsed the plants heavily during every winter. Use was heaviest after snows that covered forages on the ground surface. In seasons other than winter the deer concentrated on other plants. In short, they used honeysuckle as a emergency ration, just as they were supposed to.

Previous research in the same area shows why honeysuckle may prove so valuable in winter. During the summer the major habitat types in the area contained 90 to 210 pounds (dry weight) of vegetation that deer might eat. During winter, the figure dropped to 15 pounds per acre, and most of it was in twigs of deciduous species. These twigs are fairly nutritious when they are soft and succulent in spring. In winter, however, they have little nutritive value and are difficult for deer to digest.

Deer were highly dependent upon acorns for winter food, and the acorn crops were highly variable. They ranged from 10 pounds or less per acre in a poor year to more than 200 pounds per acre in good years. In the winters after poor acorn crops, deer numbers declined in fenced enclosures. Examination of animals led to the conclusion that diseases and parasites rather than starvation were the primary causes of death. But these deaths occurred in winters after poor acorn crops. In other winters deer numbers remained high, and herds were productive in the springs that followed.

In the second year after planting, Japanese honeysuckle produced more than 200 pounds per acre of nutritious forage. Its leaves

By observing forage production in small caged squares, scientists can estimate deer feeding on the rest of the area.

contained 14 percent crude protein, more than did any of the native forages nearby. Though the plants were still young and widely spaced, they were already producing 70 times as much winter food per acre as the surrounding forest. And this forage was concentrated so that deer had little difficulty in finding and eating it.

Results of lespedeza and rye seeding have not yet been evaluated, but benefits from these plants are relatively costly.

Results of the honeysuckle planting are described in detail in an article, "Quantity and Quality of Japanese Honeysuckle on Arkansas Ozark Food Plots" by Segelquist, Rogers, and Ward. Reprints are available from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

CRUISING, from P. 4

niques that have become feasible only since the advent of high-speed binary computers.

A guide for using the system and comparing its results with those obtained by other methods has now been issued as USDA Agriculture Handbook 415, "STX timber estimating with 3P sampling and dendrometry."

The author is Clement Mesavage, who completed the manuscript shortly before his recent retirement and death. Both Mesavage and Grosenbaugh have had extensive experience in southern forests, and both were for long periods on the staff of the Southern Forest Experiment Station. Copies are available from the Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.



RENEWABLE RESOURCE RESEARCH

Man may be the only animal with the ability, through research, to enhance his own environment.

A new color booklet, "Understanding the Ecology of Abundance," tells in pictures what scientists at the Southern Forest Experiment Station are doing to help provide knowledge for sound decisions about land management.

The Station has field laboratories in six Midsouth States, and the programs are diverse enough to provide basic scientific knowledge about all of the forests' renewable resources. Increasing emphasis is given to social rather than primarily economic values.

The opening statement of the booklet says, "The elements of the forest—water, soil, wildlife, forage, timber, scenic beauty and recreation—are not naturally antagonistic to one another. Economics alone do not dictate land use, nor do esthetics necessarily preclude it."

For copies of "Understanding the Ecology of Abundance," write the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.

TREE TIME U.S.A.

A National Tree Planting Conference, one of the largest, most comprehensive meetings of its kind ever held, will be at the Rivergate convention center in New Orleans October 22-26.

Designed to encourage appreciation for forests and urban trees in the world of tomorrow, the conference is sponsored by the American Forestry Association. More than 1,000 leaders in forestry and related fields will attend. Federal, State, and local agencies, industry, conservation organizations, and educational institutions will be represented.

"Tree Time, U.S.A." will be the theme of the conference, which will also observe the 100th anniversary of Arbor Day, originated in 1872 by J. Sterling Morton, a former AFA president from Nebraska.

About 75 million acres of idle land need to be planted in trees during the next decade, accord-

ing to the AFA. The job will require 60 billion seedlings. Only 4.5 million acres are National forest lands. The rest are privately owned, mostly in small tracts. But not all of the planting will be in forests and woodlands. Many trees are needed in cities, suburbs, and villages—on streets, around homes, and in parks. The conference will take all of these needs into account.

There will be educational exhibits and a distinguished list of speakers at the conference. Visitors will receive tree seeds or seedlings suitable for planting in their home locale.

Anyone wishing a detailed program and a pre-registration form may contact the American Forestry Association, 1319 18th Street, Washington, D. C. 20036.

An all-day bus tour is planned to Avery Island, wildlife sanctuary in the heart of Louisiana's Evangeline country, on October 22. A forestry field trip is scheduled for October 26. It will in-

clude visits to forest plantations in Louisiana and a stop at the Forest Service's research center near Gulfport, Mississippi.

VISUAL AIDS AVAILABLE

Giving a talk? Running a program? Why not show a film strip or slide set?

The recently revised catalog of USDA slide sets and film strips lists 18 categories from which to choose. They include agricultural economics, beautification, civil defense, conservation, forests, home economics, housing, nutrition, pests and pesticides, recreation, and wildlife.

All USDA slide sets and film strips are in color. For the new releases, cassettes are available with narration, music, and frequency pulses to change frames with automatic equipment.

The catalog lists prices and gives complete instructions for ordering the sets. To get a copy, write for "MP-1107." Address your request to the Photography Division, Office of Information, USDA, Washington, D. C. 20250.

LOANS, from P. 6

loans have been used to purchase forest land. And, while only a small percentage have been used directly for improving or intensifying management of woodlands, most have indirectly influenced these activities. Requirements imposed by the lenders insure that the security be well managed and protected.

Copies of "Timber Loans by U. S. Life Insurance Companies" are available on request from the Southern Forest Experiment Station, 701 Loyola Avenue, New Orleans, Louisiana 70113.